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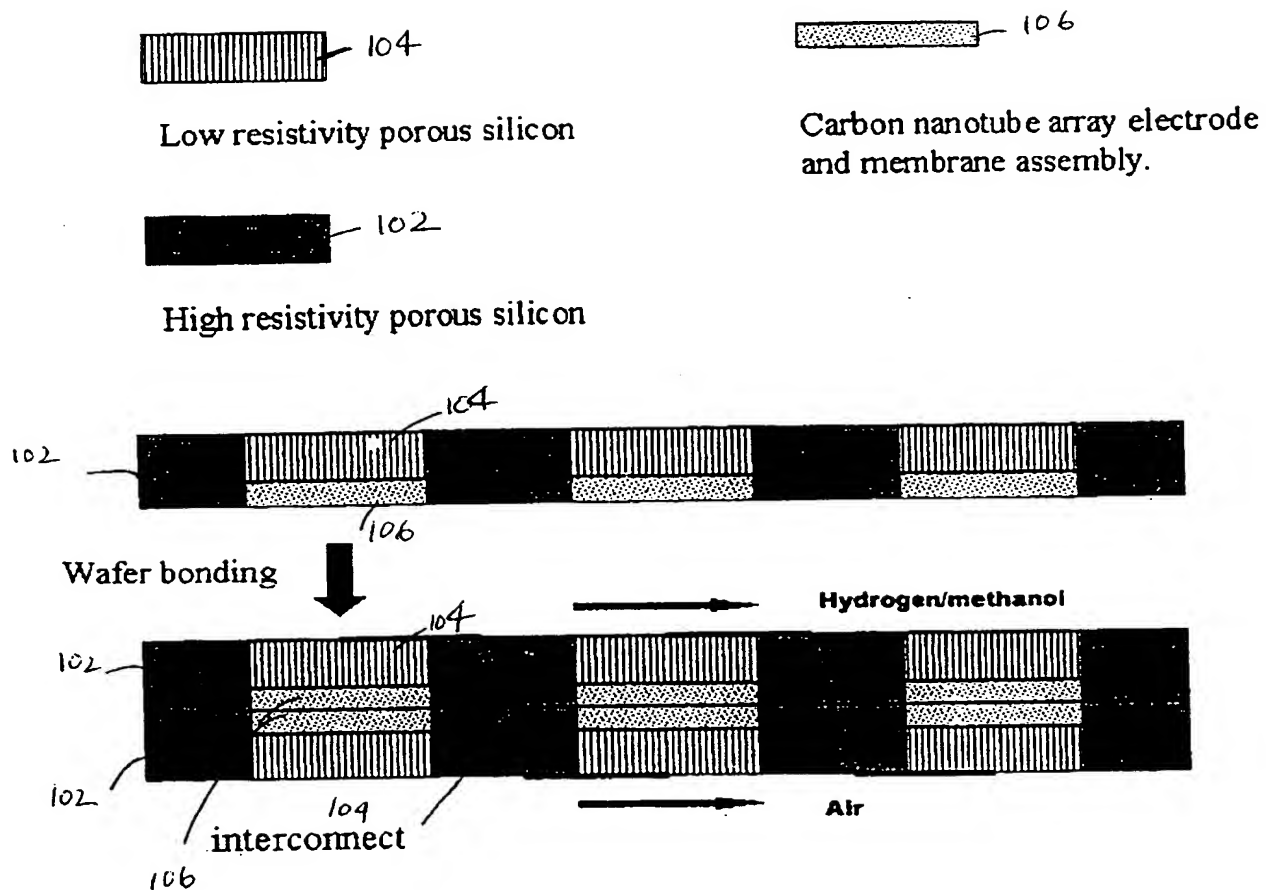


FIG. 1

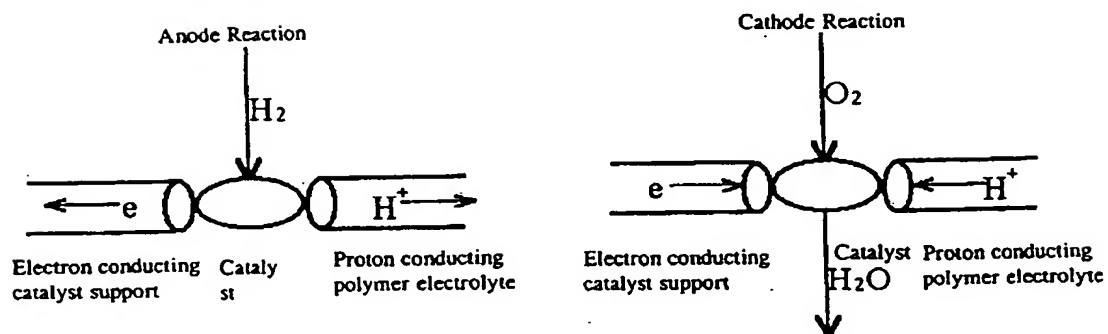


FIG. 2

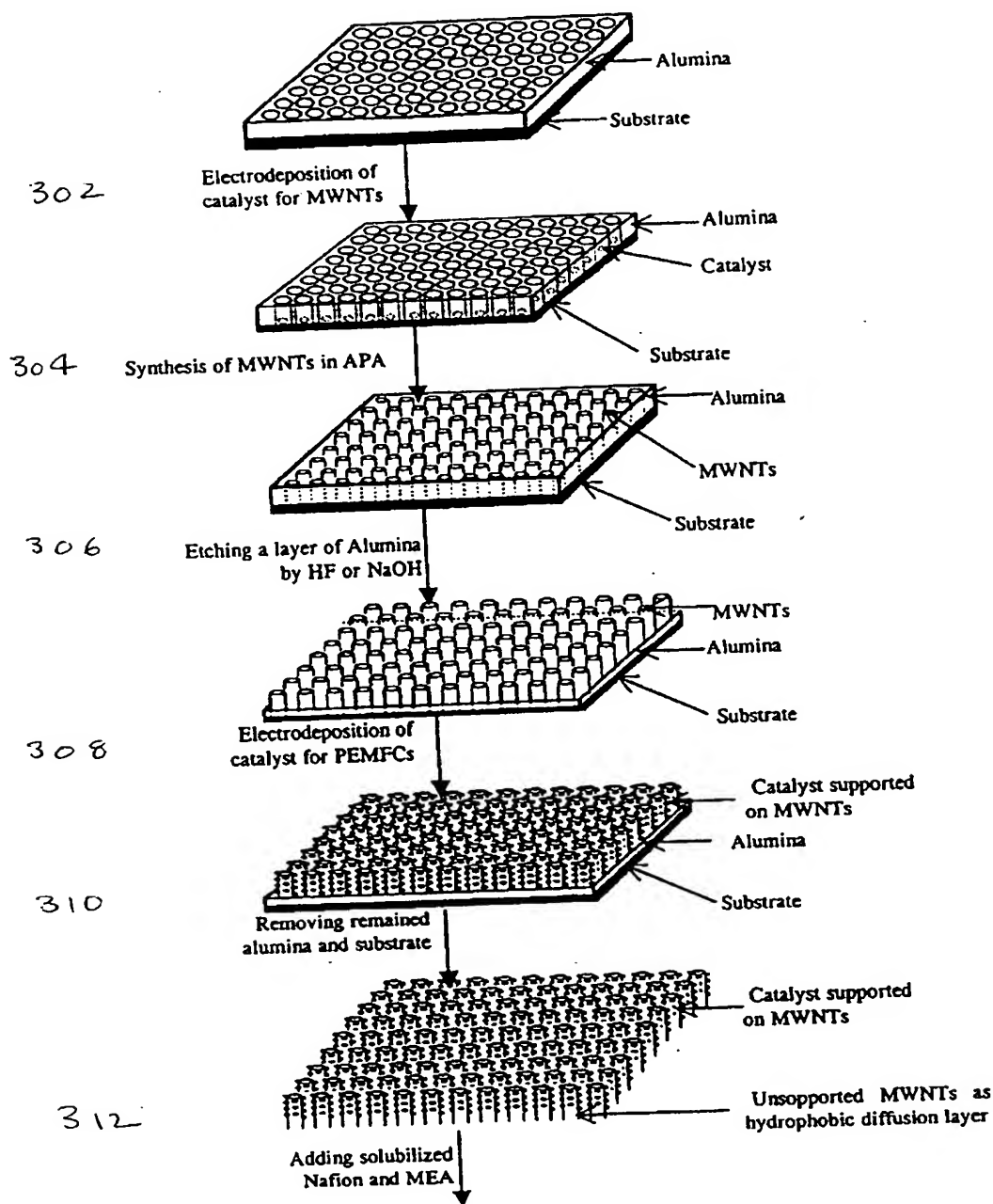
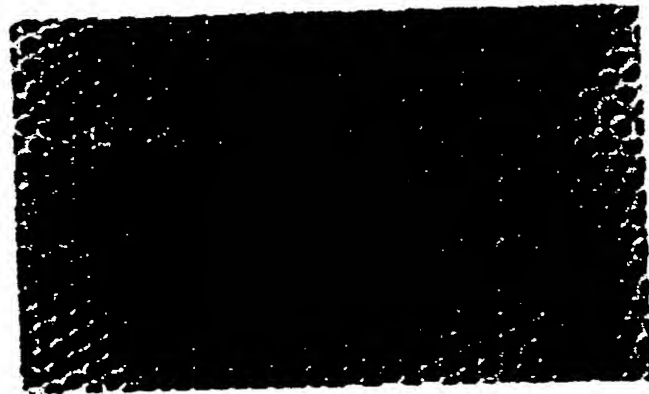


FIG. 3



— 100 nm

FIG. 4

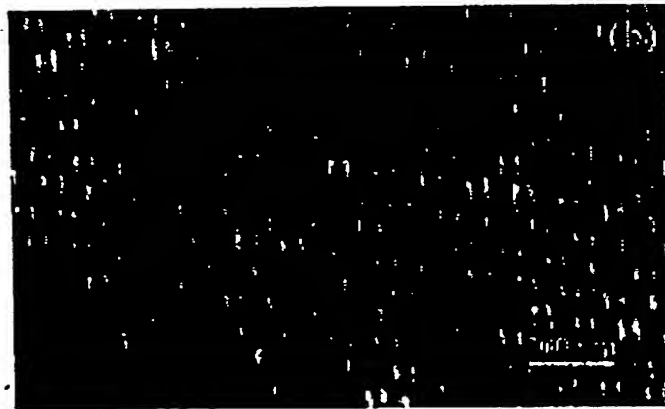


FIG. 5

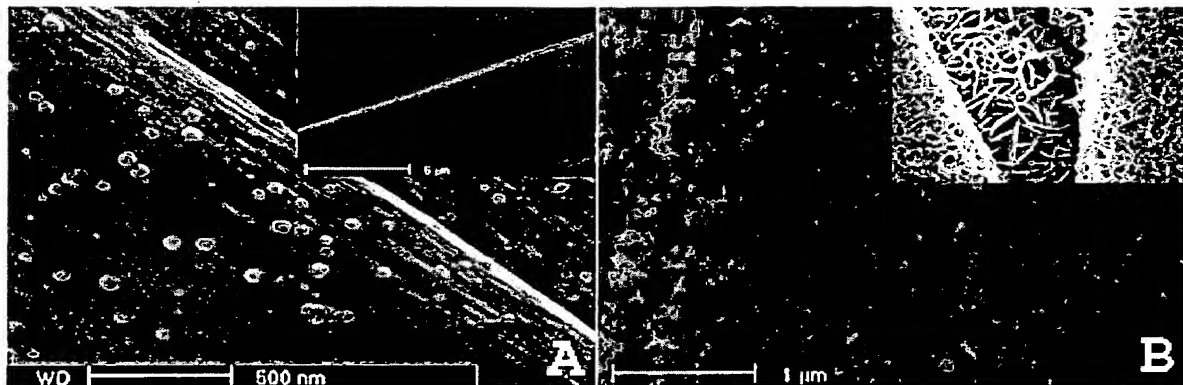


Fig. 6: SEM micrographs of carbon paper after electrodeposition of Co: A) with 0.26 mg/cm² Co (inset is bare carbon paper) and B) with 4 mg/cm² Co (inset is 20 mg/cm² Co).

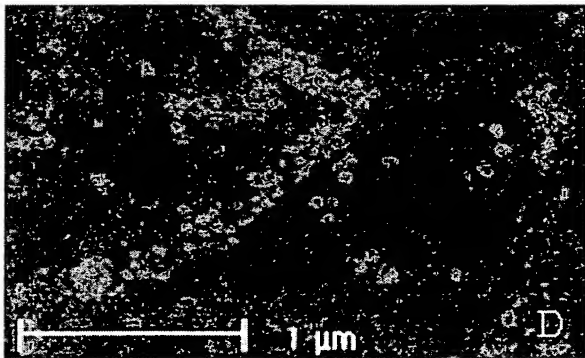


Fig. 7: SEM and TEM micrographs of MWNTs grown by 0.26 mg/cm³ Co loading on carbon paper; A) SEM with low magnification showing high coverage of MWNTs on carbon paper; B) SEM with higher magnification showing the diameter of the MWNTs and presence of Co catalyst particles; C) TEM of MWNTs, D) SEM of Pt particles electrodeposited on MWNTs.

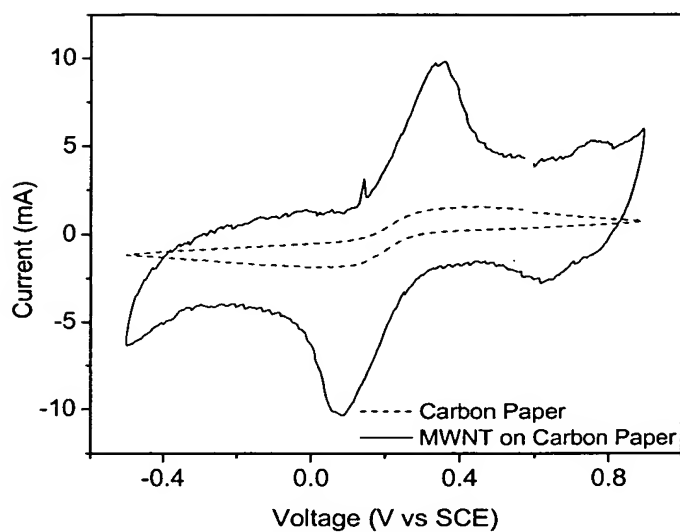


Fig. 8: Cyclic Voltammetry in a $\text{K}_3\text{Fe}(\text{CN})_6$ solution (5 mM $\text{K}_3\text{Fe}(\text{CN})_6$ + 0.5 M K_2SO_4) of: 1) 3.46 cm^2 of carbon paper alone; 2) MWNTs grown by 0.26 mg/cm^2 Co loading covering the same 3.46 cm^2 carbon paper. Scan rate: 50 mV/s.

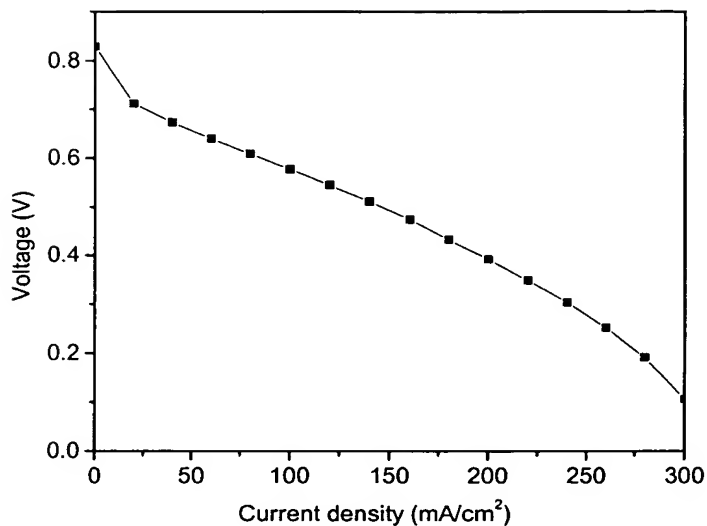


Fig. 9: Polarization curve of a MEA prepared by electrodeposition of Pt on MWNTs grown by 0.26 mg/cm² Co loading. Pt loading on both electrodes: 0.2 mg/cm². Membrane: Nafion 115. Operating conditions: cell temperature, 70°C; humidifier temperature, 80°C; pressure, 2 atm.